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(54) **POLISHING OF SMALL COMPOSITE SEMICONDUCTOR MATERIALS**

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See application file for complete search history.

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(57) **ABSTRACT**

A device includes a crystalline material within an area confined by an insulator. A surface of the crystalline material has a reduced roughness. One example includes obtaining a surface with reduced roughness by using a planarization process configured with a selectivity of the crystalline material to the insulator greater than one. In a preferred embodiment, the planarization process uses a composition including abrasive spherical silica, H_2O_2 and water. In a preferred embodiment, the area confined by the insulator is an opening in the insulator having an aspect ratio sufficient to trap defects using an ART technique.

15 Claims, 17 Drawing Sheets